

1. Project & Site Details	Project / Site Name (including sub-catchment / stage / phase where appropriate)	Bruce Grove property no.8 forecourt
	Address & post code	N17 6RA
	OS Grid ref. (Easting, Northing)	E 533711 N 190196
	LPA reference (if applicable)	
	Brief description of proposed work	Bruce Grove Public Realm improvements
	Total site Area	203.9 m ²
	Total existing impervious area	158.42 m ²
	Total proposed impervious area	135.77 m ²
	Is the site in a surface water flood risk catchment (ref. local Surface Water Management Plan)?	Yes
	Existing drainage connection type and location	Existing drainage connection is assumed lateral connection to public sewer
Designer Name	Shubham Nayak	
Designer Position	Graduate Civil Engineer	

2. Proposed Discharge Arrangements	2a. Infiltration Feasibility		
	Superficial geology classification	London Clay formation	
	Bedrock geology classification	London Clay formation	
	Site infiltration rate	N/A	m/s
	Depth to groundwater level	N/A	m below ground level
	Is infiltration feasible?	No	
	2b. Drainage Hierarchy		
		Feasible (Y/N)	Proposed (Y/N)
	1 store rainwater for later use	N	N
	2 use infiltration techniques, such as porous surfaces in non-clay areas	N	N
	3 attenuate rainwater in ponds or open water features for gradual release	N	N
	4 attenuate rainwater by storing in tanks or sealed water features for gradual release	Y	Y
	5 discharge rainwater direct to a watercourse	N	N
	6 discharge rainwater to a surface water sewer/drain	Y	Y
7 discharge rainwater to the combined sewer.	N	N	
2c. Proposed Discharge Details			
Proposed discharge location	ing into public sewers at a controlled discharge		
Has the owner/regulator of the discharge location been	Yes		

	Designer Company	Civic Engineers
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3. Drainage Strategy	3a. Discharge Rates & Required Storage				
		Greenfield (GF) runoff rate (l/s)	Existing discharge rate (l/s)	Required storage for GF rate (m ³)	Proposed discharge rate (l/s)
	Q _{bar}				
	1 in 1	0.14	2	1.5	0.6
	1 in 30	0.37	5.3	4	1.1
	1 in 100	0.51	6.9	5.4	1.3
	1 in 100 + CC			7.2	2.1
	Climate change allowance used		40%		
	3b. Principal Method of Flow Control		Orifice		
	3c. Proposed SuDS Measures				
		Catchment area (m ²)	Plan area (m ²)	Storage vol. (m ³)	
	Rainwater harvesting	0		0	
	Infiltration systems	0		0	
	Green roofs	0	0	0	
	Blue roofs	0	0	0	
	Filter strips	0	0	0	
	Filter drains	0	0	0	
Bioretention / tree pits	60	24	3.3		
Pervious pavements	0	0	0		
Swales	0	0	0		
Basins/ponds	0	0	0		
Attenuation tanks	0		0		
Total	60	24	3.3		

4. Supporting Information	4a. Discharge & Drainage Strategy	Page/section of drainage report
	Infiltration feasibility (2a) – geotechnical factual and interpretive reports, including infiltration results	Section 3.1
	Drainage hierarchy (2b)	Section 3
	Proposed discharge details (2c) – utility plans, correspondence / approval from owner/regulator of discharge location	Section 3.3 + Appendix D
	Discharge rates & storage (3a) – detailed hydrologic and hydraulic calculations	Section 3.3 + Appendix C & E
	Proposed SuDS measures & specifications (3b)	Section 3.3 + Appendix F
	4b. Other Supporting Details	Page/section of drainage report
	Detailed Development Layout	Appendix A
	Detailed drainage design drawings, including exceedance flow routes	Appendix F
	Detailed landscaping plans	Appendix F
	Maintenance strategy	Section 4
	Demonstration of how the proposed SuDS measures improve:	
	a) water quality of the runoff?	Section 3.3, Table 6
	b) biodiversity?	Section 3.3, Table 6
	c) amenity?	Section 3.3, Table 6

1. Project & Site Details	Project / Site Name (including sub-catchment / stage / phase where appropriate)	Bruce Grove property no.9 forecourt
	Address & post code	N17 6RA
	OS Grid ref. (Easting, Northing)	E 533711 N 190196
	LPA reference (if applicable)	
	Brief description of proposed work	Bruce Grove Public Realm improvements
	Total site Area	200 m ²
	Total existing impervious area	183.1 m ²
	Total proposed impervious area	183 m ²
	Is the site in a surface water flood risk catchment (ref. local Surface Water Management Plan)?	Yes
	Existing drainage connection type and location	Existing drainage connection is assumed lateral connection to public sewer
Designer Name	Shubham Nayak	
Designer Position	Graduate Civil Engineer	

2. Proposed Discharge Arrangements	2a. Infiltration Feasibility		
	Superficial geology classification	London Clay formation	
	Bedrock geology classification	London Clay formation	
	Site infiltration rate	N/A	m/s
	Depth to groundwater level	N/A	m below ground level
	Is infiltration feasible?	No	
	2b. Drainage Hierarchy		
		Feasible (Y/N)	Proposed (Y/N)
	1 store rainwater for later use	N	N
	2 use infiltration techniques, such as porous surfaces in non-clay areas	N	N
	3 attenuate rainwater in ponds or open water features for gradual release	N	N
	4 attenuate rainwater by storing in tanks or sealed water features for gradual release	Y	Y
	5 discharge rainwater direct to a watercourse	N	N
	6 discharge rainwater to a surface water sewer/drain	Y	Y
7 discharge rainwater to the combined sewer.	N	N	
2c. Proposed Discharge Details			
Proposed discharge location	gung into public sewers at a controlled disca		
Has the owner/regulator of the discharge location been	Yes		

	Designer Company	Civic Engineers
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3. Drainage Strategy	3a. Discharge Rates & Required Storage				
		Greenfield (GF) runoff rate (l/s)	Existing discharge rate (l/s)	Required storage for GF rate (m ³)	Proposed discharge rate (l/s)
	Q _{bar}				
	1 in 1	0.14	2	1.94	0.1
	1 in 30	0.37	6.3	4.91	0.1
	1 in 100	0.51	8.1	6.62	0.2
	1 in 100 + CC			9	0.2
	Climate change allowance used		40%		
	3b. Principal Method of Flow Control		Orifice		
	3c. Proposed SuDS Measures				
		Catchment area (m ²)	Plan area (m ²)	Storage vol. (m ³)	
	Rainwater harvesting	0		0	
	Infiltration systems	0		0	
	Green roofs	0	0	0	
	Blue roofs	0	0	0	
Filter strips	0	0	0		
Filter drains	0	0	0		
Bioretention / tree pits	53.6	17	2		
Pervious pavements	108.4	162	20		
Swales	0	0	0		
Basins/ponds	0	0	0		
Attenuation tanks	0		0		
Total	162	179	22		

4. Supporting Information	4a. Discharge & Drainage Strategy	Page/section of drainage report
	Infiltration feasibility (2a) – geotechnical factual and interpretive reports, including infiltration results	Section 3.1
	Drainage hierarchy (2b)	Section 3
	Proposed discharge details (2c) – utility plans, correspondence / approval from owner/regulator of discharge location	Section 3.3 + Appendix D
	Discharge rates & storage (3a) – detailed hydrologic and hydraulic calculations	Section 3.3 + Appendix C & E
	Proposed SuDS measures & specifications (3b)	Section 3.3 + Appendix F
	4b. Other Supporting Details	Page/section of drainage report
	Detailed Development Layout	Appendix A
	Detailed drainage design drawings, including exceedance flow routes	Appendix F
	Detailed landscaping plans	Appendix F
	Maintenance strategy	Section 4
	Demonstration of how the proposed SuDS measures improve:	
	a) water quality of the runoff?	Section 3.3, Table 6
	b) biodiversity?	Section 3.3, Table 6
	c) amenity?	Section 3.3, Table 6

1. Project & Site Details	Project / Site Name (including sub-catchment / stage / phase where appropriate)	Bruce Grove property no.11 forecourt
	Address & post code	N17 6RA
	OS Grid ref. (Easting, Northing)	E 533711 N 190196
	LPA reference (if applicable)	
	Brief description of proposed work	Bruce Grove Public Realm improvements
	Total site Area	211 m ²
	Total existing impervious area	204.47 m ²
	Total proposed impervious area	192.4 m ²
	Is the site in a surface water flood risk catchment (ref. local Surface Water Management Plan)?	Yes
	Existing drainage connection type and location	Existing drainage connection is assumed lateral connection to public sewer
Designer Name	Shubham Nayak	
Designer Position	Graduate Civil Engineer	

2. Proposed Discharge Arrangements	2a. Infiltration Feasibility		
	Superficial geology classification	London Clay formation	
	Bedrock geology classification	London Clay formation	
	Site infiltration rate	N/A	m/s
	Depth to groundwater level	N/A	m below ground level
	Is infiltration feasible?	No	
	2b. Drainage Hierarchy		
		Feasible (Y/N)	Proposed (Y/N)
	1 store rainwater for later use	N	N
	2 use infiltration techniques, such as porous surfaces in non-clay areas	N	N
	3 attenuate rainwater in ponds or open water features for gradual release	N	N
	4 attenuate rainwater by storing in tanks or sealed water features for gradual release	Y	Y
	5 discharge rainwater direct to a watercourse	N	N
	6 discharge rainwater to a surface water sewer/drain	Y	Y
7 discharge rainwater to the combined sewer.	N	N	
2c. Proposed Discharge Details			
Proposed discharge location	gung into public sewers at a controlled disca		
Has the owner/regulator of the discharge location been	Yes		

	Designer Company	Civic Engineers
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	consulted?	
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3. Drainage Strategy	3a. Discharge Rates & Required Storage				
		Greenfield (GF) runoff rate (l/s)	Existing discharge rate (l/s)	Required storage for GF rate (m ³)	Proposed discharge rate (l/s)
	Q _{bar}				
	1 in 1	0.14	2.6	2.27	1.2
	1 in 30	0.37	6.8	5.55	2.2
	1 in 100	0.51	8.9	7.47	2.6
	1 in 100 + CC			10.74	5.5
	Climate change allowance used		40%		
	3b. Principal Method of Flow Control		Orifice		
	3c. Proposed SuDS Measures				
		Catchment area (m ²)	Plan area (m ²)	Storage vol. (m ³)	
	Rainwater harvesting	0		0	
	Infiltration systems	0		0	
	Green roofs	0	0	0	
	Blue roofs	0	0	0	
Filter strips	0	0	0		
Filter drains	0	0	0		
Bioretention / tree pits	46.8	25	3.38		
Pervious pavements	0	0	0		
Swales	0	0	0		
Basins/ponds	0	0	0		
Attenuation tanks	0		0		
Total	46.8	25	3.38		

4. Supporting Information	4a. Discharge & Drainage Strategy	Page/section of drainage report
	Infiltration feasibility (2a) – geotechnical factual and interpretive reports, including infiltration results	Section 3.1
	Drainage hierarchy (2b)	Section 3
	Proposed discharge details (2c) – utility plans, correspondence / approval from owner/regulator of discharge location	Section 3.3 + Appendix D
	Discharge rates & storage (3a) – detailed hydrologic and hydraulic calculations	Section 3.3 + Appendix C & E
	Proposed SuDS measures & specifications (3b)	Section 3.3 + Appendix F
	4b. Other Supporting Details	Page/section of drainage report
	Detailed Development Layout	Appendix A
	Detailed drainage design drawings, including exceedance flow routes	Appendix F
	Detailed landscaping plans	Appendix F
	Maintenance strategy	Section 4
	Demonstration of how the proposed SuDS measures improve:	
	a) water quality of the runoff?	Section 3.3, Table 6
	b) biodiversity?	Section 3.3, Table 6
	c) amenity?	Section 3.3, Table 6

1. Project & Site Details	Project / Site Name (including sub-catchment / stage / phase where appropriate)	Bruce Grove property no.12 forecourt
	Address & post code	N17 6RA
	OS Grid ref. (Easting, Northing)	E 533711 N 190196
	LPA reference (if applicable)	
	Brief description of proposed work	Bruce Grove Public Realm improvements
	Total site Area	143.23 m ²
	Total existing impervious area	122.76 m ²
	Total proposed impervious area	100 m ²
	Is the site in a surface water flood risk catchment (ref. local Surface Water Management Plan)?	Yes
	Existing drainage connection type and location	Existing drainage connection is assumed lateral connection to public sewer
	Designer Name	Shubham Nayak
	Designer Position	Graduate Civil Engineer

2. Proposed Discharge Arrangements	2a. Infiltration Feasibility		
	Superficial geology classification	London Clay formation	
	Bedrock geology classification	London Clay formation	
	Site infiltration rate	N/A	m/s
	Depth to groundwater level	N/A	m below ground level
	Is infiltration feasible?	No	
	2b. Drainage Hierarchy		
		Feasible (Y/N)	Proposed (Y/N)
	1 store rainwater for later use	N	N
	2 use infiltration techniques, such as porous surfaces in non-clay areas	N	N
	3 attenuate rainwater in ponds or open water features for gradual release	N	N
	4 attenuate rainwater by storing in tanks or sealed water features for gradual release	Y	Y
	5 discharge rainwater direct to a watercourse	N	N
	6 discharge rainwater to a surface water sewer/drain	Y	Y
	7 discharge rainwater to the combined sewer.	N	N
2c. Proposed Discharge Details			
Proposed discharge location	gng into public sewers at a controlled discar		
Has the owner/regulator of the discharge location been	Yes		

	Designer Company	Civic Engineers
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3. Drainage Strategy	3a. Discharge Rates & Required Storage				
		Greenfield (GF) runoff rate (l/s)	Existing discharge rate (l/s)	Required storage for GF rate (m ³)	Proposed discharge rate (l/s)
	Q _{bar}				
	1 in 1	0.14	1.5	1.2	0.1
	1 in 30	0.37	4.1	3.03	0.2
	1 in 100	0.51	5.4	4.08	0.2
	1 in 100 + CC			5.6	0.3
	Climate change allowance used		40%		
	3b. Principal Method of Flow Control		Orifice		
	3c. Proposed SuDS Measures				
		Catchment area (m ²)	Plan area (m ²)	Storage vol. (m ³)	
	Rainwater harvesting	0		0	
	Infiltration systems	0		0	
	Green roofs	0	0	0	
	Blue roofs	0	0	0	
	Filter strips	0	0	0	
	Filter drains	0	0	0	
Bioretention / tree pits	0	0	0		
Pervious pavements	15	100	9		
Swales	0	0	0		
Basins/ponds	0	0	0		
Attenuation tanks	0		0		
Total	15	100	9		

4. Supporting Information	4a. Discharge & Drainage Strategy	Page/section of drainage report
	Infiltration feasibility (2a) – geotechnical factual and interpretive reports, including infiltration results	Section 3.1
	Drainage hierarchy (2b)	Section 3
	Proposed discharge details (2c) – utility plans, correspondence / approval from owner/regulator of discharge location	Section 3.3 + Appendix D
	Discharge rates & storage (3a) – detailed hydrologic and hydraulic calculations	Section 3.3 + Appendix C & E
	Proposed SuDS measures & specifications (3b)	Section 3.3 + Appendix F
	4b. Other Supporting Details	Page/section of drainage report
	Detailed Development Layout	Appendix A
	Detailed drainage design drawings, including exceedance flow routes	Appendix F
	Detailed landscaping plans	Appendix F
	Maintenance strategy	Section 4
	Demonstration of how the proposed SuDS measures improve:	
	a) water quality of the runoff?	Section 3.3, Table 6
	b) biodiversity?	Section 3.3, Table 6
	c) amenity?	Section 3.3, Table 6

1. Project & Site Details	Project / Site Name (including sub-catchment / stage / phase where appropriate)	Bruce Grove property no.14 forecourt
	Address & post code	N17 6YT
	OS Grid ref. (Easting, Northing)	E 533711 N 190196
	LPA reference (if applicable)	
	Brief description of proposed work	Bruce Grove Public Realm improvements
	Total site Area	206.62 m ²
	Total existing impervious area	193.67 m ²
	Total proposed impervious area	167.07 m ²
	Is the site in a surface water flood risk catchment (ref. local Surface Water Management Plan)?	Yes
	Existing drainage connection type and location	Existing drainage connection is assumed lateral connection to public sewer
Designer Name	Shubham Nayak	
Designer Position	Graduate Civil Engineer	

2. Proposed Discharge Arrangements	2a. Infiltration Feasibility		
	Superficial geology classification	London Clay formation	
	Bedrock geology classification	London Clay formation	
	Site infiltration rate	N/A	m/s
	Depth to groundwater level	N/A	m below ground level
	Is infiltration feasible?	No	
	2b. Drainage Hierarchy		
		Feasible (Y/N)	Proposed (Y/N)
	1 store rainwater for later use	N	N
	2 use infiltration techniques, such as porous surfaces in non-clay areas	N	N
	3 attenuate rainwater in ponds or open water features for gradual release	N	N
	4 attenuate rainwater by storing in tanks or sealed water features for gradual release	Y	Y
	5 discharge rainwater direct to a watercourse	N	N
	6 discharge rainwater to a surface water sewer/drain	Y	Y
	7 discharge rainwater to the combined sewer.	N	N
2c. Proposed Discharge Details			
Proposed discharge location	gung into public sewers at a controlled discar		
Has the owner/regulator of the discharge location been	Yes		

	Designer Company	Civic Engineers
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	consulted?	
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3. Drainage Strategy	3a. Discharge Rates & Required Storage				
		Greenfield (GF) runoff rate (l/s)	Existing discharge rate (l/s)	Required storage for GF rate (m ³)	Proposed discharge rate (l/s)
	Q _{bar}				
	1 in 1	0.14	2.6	2.29	0.1
	1 in 30	0.37	6.6	5.45	0.2
	1 in 100	0.51	8.6	7.26	0.3
	1 in 100 + CC			10.5	0.5
	Climate change allowance used		40%		
	3b. Principal Method of Flow Control		Orifice		
	3c. Proposed SuDS Measures				
		Catchment area (m ²)	Plan area (m ²)	Storage vol. (m ³)	
	Rainwater harvesting	0		0	
	Infiltration systems	0		0	
	Green roofs	0	0	0	
	Blue roofs	0	0	0	
	Filter strips	0	0	0	
	Filter drains	0	0	0	
Bioretention / tree pits	0	0	0		
Pervious pavements	33.57	134	9		
Swales	0	0	0		
Basins/ponds	0	0	0		
Attenuation tanks	0		0		
Total	33.57	134	9		

4. Supporting Information	4a. Discharge & Drainage Strategy	Page/section of drainage report
	Infiltration feasibility (2a) – geotechnical factual and interpretive reports, including infiltration results	Section 3.1
	Drainage hierarchy (2b)	Section 3
	Proposed discharge details (2c) – utility plans, correspondence / approval from owner/regulator of discharge location	Section 3.3 + Appendix D
	Discharge rates & storage (3a) – detailed hydrologic and hydraulic calculations	Section 3.3 + Appendix C & E
	Proposed SuDS measures & specifications (3b)	Section 3.3 + Appendix F
	4b. Other Supporting Details	Page/section of drainage report
	Detailed Development Layout	Appendix A
	Detailed drainage design drawings, including exceedance flow routes	Appendix F
	Detailed landscaping plans	Appendix F
	Maintenance strategy	Section 4
	Demonstration of how the proposed SuDS measures improve:	
	a) water quality of the runoff?	Section 3.3, Table 6
	b) biodiversity?	Section 3.3, Table 6
	c) amenity?	Section 3.3, Table 6

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